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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002P00043WO		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 02/09671	International filing date (day/month/year) 30.08.2002	Priority date (day/month/year) 30.08.2002	
International Patent Classification (IPC) or both national classification and IPC G06F9/44			
Applicant SAP AKTIENGESELLSCHAFT			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 5 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand  14.10.2003		Date of completion of this report  07.09.2004	
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer de Man, A Telephone No. +31 70 340-4527 	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 02/09671

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

2-13, 15-17, 19, 21-32, 34-38 as originally filed

1, 14, 18, 20, 33 received on 26.07.2004 with letter of 23.07.2004

**Drawings, Sheets**

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-38
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-38
Industrial applicability (IA)	Yes: Claims	1-38
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1 Reference is made to the following document:

D1: US 2002/092004 A

2 Document D1 discloses (the references in parentheses applying to this document):

*an application generation system for automatically generating a software application, comprising:*

*a central processing unit (implicitly present in the designer computer 12);*

*a repository containing a set of meta data (design database 30 containing database design files 34, cf. paragraph [0035]);*

*a generation tool (generator program 28);*

*input/output means for treating said meta data and for invoking said generating tool (design program 26 for creating design files, cf. paragraph [0035], and "Generate" button 154 to invoke the generator program, cf. paragraph [0060]);*

*said set of meta data containing structured process application information comprising information on functions operating on data (system entities 50, see paragraph [0044], comprising custom methods, see paragraph [0055], the entities and methods being stored as a design database file after having been defined using design program 26, cf. paragraph [0035]), and said generation tool retrieving data from said repository (page 5, paragraph [0060], the system design is stored in the design database in an XML meta document, which is then received by the generator program) and, on the basis of said retrieved repository data, generating a customized business process application (generated software application 40 which is a business process application as indicated on page 1, paragraph [0002]),*

from which the subject-matter of claim 1 differs in that said software application is a business software application and said data is business data. As these features lack technical character, they do not contribute to an inventive step.

The subject-matter of claim 1 does therefore not involve an inventive step (Article 33(3) PCT).

- 3 Dependent claims 2-13 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT), the reasons being as follows:

claim 2: in the system disclosed in document D1, *said generation tool comprises a first tool and a second tool, said first tool being a meta data dependent passer element* (the part of the generator program performing steps 205 and 210, cf. page 5,6, paragraphs [0062] and [0063]) *and said second tool being a meta data independent generating element* (the part of the generator program performing the generating steps described on page 6, paragraphs [0064]-[0066]);

claim 3: in the system disclosed in document D1, the set of meta data consists of a database containing XML meta documents containing meta data entities, from which the subject-matter of claim 3 differs in that meta data entities are stored in database tables; the use of database tables is merely one of several straightforward possibilities of organizing a database from which the skilled person would select, in accordance with circumstances and without the exercise of inventive skill; this feature therefore does not contribute to an inventive step;

claim 4: the meta data entities used in the system disclosed in document D1 *contain information on the identification of an application to be generated* (page 5, paragraph [0059], project name 152), *on object types and on object structures* (cf. Figures 4-7 and paragraphs [0045]-[0054]);

claim 5: in the system disclosed in document D1, the *object types contain information on the business process data* (attributes and relations, cf. paragraphs [0045]-[0054]) *to be processed by the application to be*

*generated and on functions operating on said business process (page 5, paragraph [0055], custom methods);*

claims 6-8: the business process being one of a billing process, a bonus payment process or a commission payment process is not a technical feature; these features therefore do not contribute to an inventive step.

claim 9: in the system disclosed in document D1, a workbench is disclosed from which the user may add (and thereby create) entities, delete entities, and select entities for viewing and editing (Figures 4a and 4b and page 3, paragraph [0045]). Inheritance of meta data is disclosed on page 4, paragraph [0051];

claim 10: the "Generate" button 154 invokes the generator program (page 5, paragraph [0060]) by initiating an import of meta data into the passer element (page 5, paragraph [0060], the generator program receives the XML meta document);

claim 11: the part of the generator program performing steps 205 and 210 handles, interprets, and processes the meta data (page 5,6, paragraphs [0062] and [0063], the XML meta documents converted into a validated database file 38), which is then input to the generating element of the generator program to generate program code (project file 168, see page 6, paragraph [0066]);

claim 12: the generating element generates data objects in step 250, see page 6, paragraph [0065];

claim 13: the generating element generates a data base in step 230, see page 6, paragraph [0064];

- 4 The features of method claims 14-17 largely correspond to features of apparatus claims 1, 2, 11, 12, 13. Thus, by substantially the same reasoning as above, the subject-matter of claims 14-17 does not involve an inventive step (Article 33(3) PCT).

- 5 The subject-matter of independent claims 18 and 19 largely corresponds to the subject-matter of claims 14-17. Thus, by substantially the same reasoning as above, the subject-matter of claims 18 and 19 does not involve an inventive step (Article 33(3) PCT).
- 6 The subject-matter of each of the claims in the range 20-38 differs from the subject-matter of its corresponding claim in the range 1-19 only in that an adapted version of an existing business software application is generated.

In the area of the development and generation of software applications it is well known to create an adapted version of an existing software application by amending the source code data from which the existing application was generated, and re-generating the application from the amended source code data. This feature therefore does not contribute to an inventive step.

Since the subject-matter of claims 1-19 also lacks an inventive step, it is concluded that the subject-matter of claims 20-38 does not meet the requirements of Article 33(3) PCT regarding inventive step.

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## Claims

1. A business application generation system for  
5 automatically generating a business software application, comprising:

- a central processing unit (14);
- a repository (20) containing a set of meta data;

10 - a generation tool (22);

- input/output means (16) for treating said meta data and for invoking said generation tool (22);

said set of meta data containing structured business process application information comprising  
15 information on functions operating on business data, and said generation tool (22) retrieving data from said repository (20) and, on the basis of said retrieved repository data, generating a customized business process application.

20

2. The system according to claim 1, wherein said generation tool (22) comprises a first tool and a second tool, said first tool being a meta data dependent passer element (30) and said second tool  
25 being a meta data independent generating element (32).

3. The system according to claim 1 or 2, said set of meta data consists of data base tables containing meta data entities.

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4. The system according to claim 3, wherein said meta data entities contain information on the identification of an application to be generated, on object types and on object structures.



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generating element (32), said generating element (32) generating, on the basis of said data input, program code for said business process application.

5        12.     The system according to claim 11, wherein said generating element (32) further generates data objects for said business process application.

10       13.     The system according to claim 11, wherein said generating element (32) further generates a data base for said business process application.

14.     A method for generating a business software application, comprising:

15       providing a set of meta data containing information on the business process data to be processed by the application to be generated and on functions operating on said business process data, and

20       importing said set of meta data comprising information on functions into a generation tool (22) comprising a meta data dependent passer element (30) and a meta data independent generating element (32) for generating a customized business software application.

25       15.     A method according to claim 14, further comprising the step of customizing said set of meta data via an input/output means before said meta data is imported into said generation tool (22).

30       16.     A method according to claim 14 or 15, further comprising the step of handling, interpreting, and processing said set of meta data imported into said generation tool (22) in said meta data dependent passer element (30).

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17. A method according to claim 16, further comprising the steps of inputting said set of meta data after processing in said passer element (30) into said generating element (32), and generating program code  
5 for said business process application on the basis of said data input.

18. A computer program product for generating a business software application, the computer program  
10 product comprising instructions to cause a processor of a computer to execute the following steps:

importing a set of meta data comprising information on functions into a generation tool (22), said generation tool (22) comprising a meta data dependent  
15 passer element (30) and a meta data independent generating element (32),

on the basis of said set of meta data, processing meta data in said passer element (30), inputting said processed meta data in said generating element (32) and  
20 generating a customized business software application.

19. A computer program comprising computer program code means to perform a method according to one of claims 14 to 17 if run on a computer.

25

20. A business application generation system for automatically adapting a business software application, comprising:

- a central processing unit (14);
- 30 - a repository (20) containing a set of meta data;
- a generation tool (22);
- input/output means (16) for treating said meta data and for invoking said generation tool (22);

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said set of meta data containing structured business process application information comprising information on functions operating on business data, and said generation tool (22) retrieving data from said repository (20) and, on the basis of said retrieved repository data, generating a customized adapted version of an existing business process application.

21. The system according to claim 20, wherein said generation tool (22) comprises a first tool and a second tool, said first tool being a meta data dependent passer element (30) and said second tool being a meta data independent generating element (32).

22. The system according to claim 20 or 21, said set of meta data consists of data base tables containing meta data entities.

23. The system according to claim 22, wherein said meta data entities contain information on the identification of an application to be generated, on object types and on object structures.

24. The system according to claim 23, wherein said object types contain information on the business process data to be processed by the application to be generated and on functions operating on said business process.

25. The system according to one of the claims 20 to 24, wherein said business process is a billing process.

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33. A method for generating an adapted business software application, comprising:

5 providing a set of meta data containing information on the business process data to be processed by the adapted application to be generated and on functions operating on said business process data, and

10 importing said set of meta data comprising information on functions into a generation tool (22) comprising a meta data dependent passer element (30) and a meta data independent generating element (32) for generating a customized adapted business software application.

15 34. A method according to claim 33, further comprising the step of customizing said set of meta data via an input/output means (16) before said meta data is imported into said generation tool.

20 35. A method according to claim 33 or 34, further comprising the step of handling, interpreting, and processing said set of meta data imported into said generation tool in said meta data dependent passer element (30).

25 36. A method according to claim 35, further comprising the steps of inputting said set of meta data after processing in said passer element (30) into said generating element (32), and generating program code  
30 for said business process application on the basis of said data input.

37. A computer program product for generating an adapted business software application, the computer